

14.0 WHITE ROCK TRACT



14.1 Affected Environment

14.1.1 Land Use

The White Rock Tract consists of about 100 acres (40 hectares) and is located north of the White Rock residential community (see Figure 14.1.1-1, White Rock Tract Layout). Lands belonging to the Pueblo of San Ildefonso lie to the north of the tract, and to the west is LANL's current low-level radioactive waste facility located in Technical Area (TA) 54. State Road 4 provides the primary access to the site (DOE 1998b).

Vegetation at the tract includes pinyon-juniper woodlands and juniper savannah. The tract was historically part of TA 54 but is separated from the developed portions of the TA 54 by elevation. The tract was never used for LANL activities beyond providing electrical power from a small substation, water from a pump station and water lines, and serving as a buffer area between residents and LANL operations.

Existing land use at the White Rock Tract includes activities associated with a water pump station, an electrical substation, and

power lines. A small Visitor Center on land leased to the County is located at the tract also (DOE 1998b).

Adjacent land uses are based on that of the White Rock commercial and residential activities and include retail and light commercial industry, offices, commercial storage, single-family dwellings, and a small amount of high-density residential areas (approximately 9 acres [3.6 hectares]). The largest and most active businesses serve the local communities, including a supermarket, gas stations, and local retail establishments (LAC 1997). Land use to the north includes the open areas of undeveloped Pueblo land. There are no recognized trails within the tract; no other recreational opportunities exist at the tract (LAC 1997 and DOE 1999c).

Another land use involves structures or facilities that are associated with Federal, State, or local permits. Examples of such facilities or structures are air monitoring stations, wastewater discharge outfalls, and water monitoring or supply wells. Figure 14.1.1-2 shows the environmental media monitoring stations located on and near the subject land tract.

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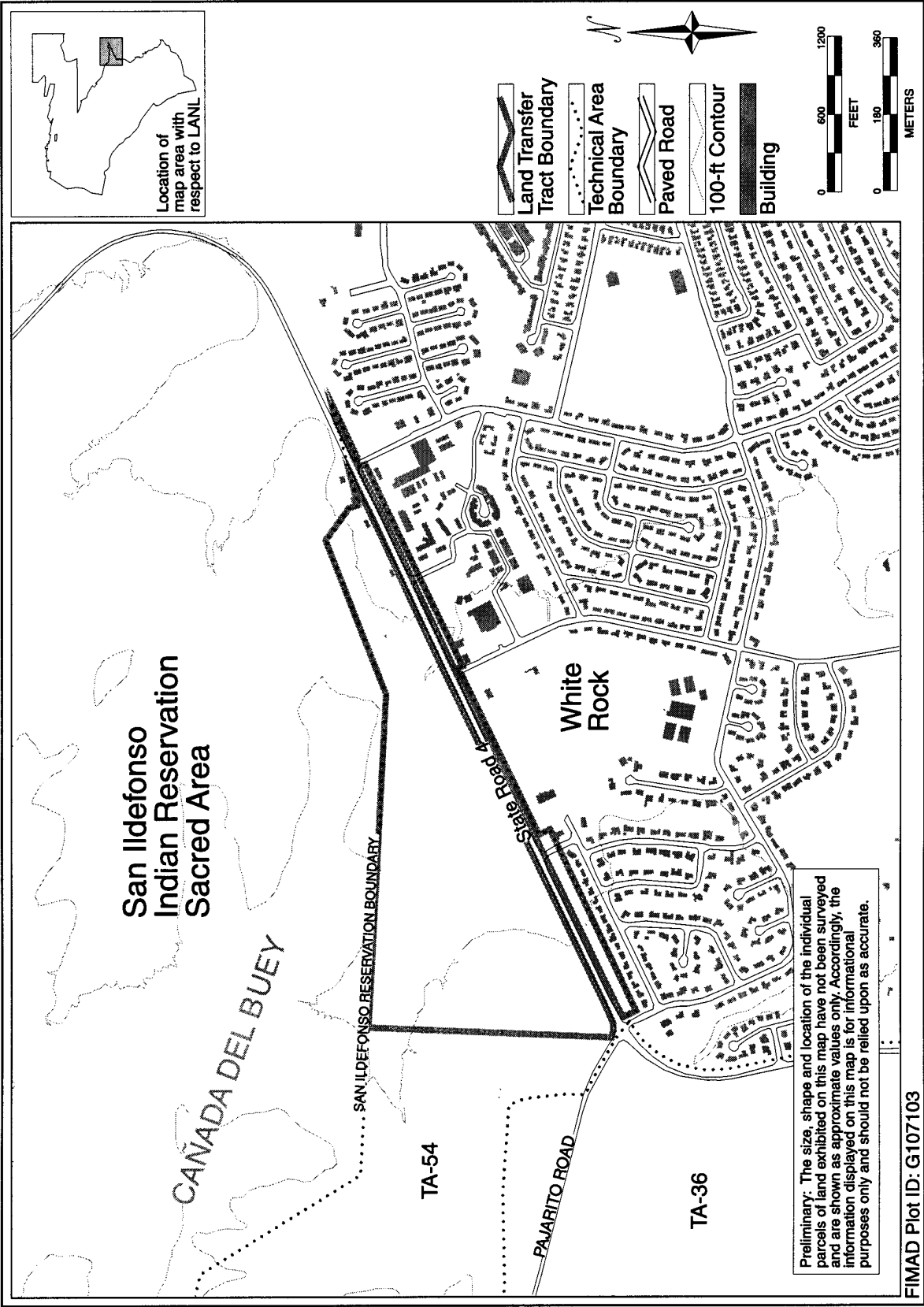


Figure 14.1.1-1. White Rock Tract Layout.

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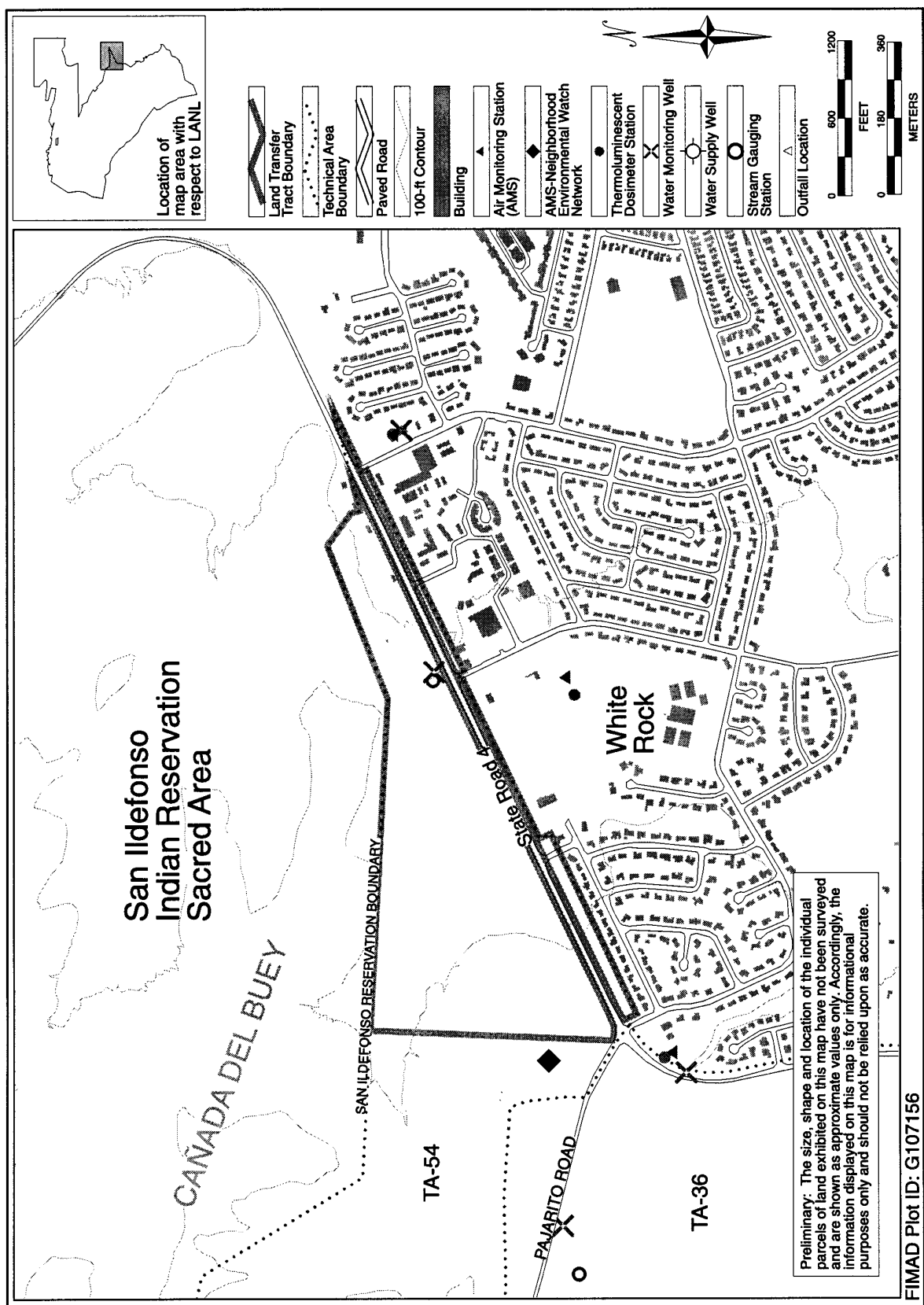


Figure 14.1.1-2. White Rock Tract Monitoring Stations and Outfall Locations.

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14.1.1.1 Environmental Restoration

There are no potential release sites (PRSs) within the White Rock Tract. There is only one DOE-owned structure; a pumping station for the water supply system. No sampling or characterization of the tract has been performed to date. A portion of the tract lies within the stream channel and floodplain of Cañada del Buey, and sampling of this canyon system has detected low levels of several radioactive isotopes.

Figure 14.1.1.1-1 shows areas with the potential contamination issues (PCIs) within this tract, as well as areas with no known contamination. Only the western half appears to have no known contamination issues, although much of the tract has not yet been characterized. The western half of the tract is the site of dispersed plutonium in sediments. PCI acreage is estimated to total 38 acres (15 hectares), about 40 percent of the tract.

14.1.2 Transportation

This site has access to State Road 4, a four-lane State highway (see Figure 14.1.1-1). East and west of White Rock, State Road 4 is a two-lane highway and will be analyzed as such. State Road 4 also intersects with Pajarito Road, a two-lane road, at the eastern edge of the tract. The current capacity of State Road 4 at this location is approximately 2,375

passenger cars per hour (pcph). The current capacity of Pajarito Road is approximately 1,900 pcph. Table 14.1.2-1 shows the geometry, capacity, 1996 traffic volumes, and 1996 and 2018 level of service (LOS) for these two roadways.

As shown in the table, the LOS for both State Road 4 and Pajarito Road is expected to degrade from LOS D (below average operating conditions) to LOS E (maximum capacity) by the year 2018.

14.1.3 Infrastructure

Figure 14.1.3-1 shows the location of structures, roads, fence lines, and utility lines on the White Rock Tract. A small building on land leased to the County as a Visitor Center is present on the tract. Two electrical power lines traverse this tract immediately north of State Road 4. A water line and pumping substation are located on the tract. Except for the pumping station and Visitor Center, there are no facilities located on this tract that use gas, water, or electricity. However, all utilities are available to the site. This tract is not metered separately for any utilities, and no figures for current utility usage are available.

Table 14.1.2-1. Traffic Volume Estimates

LOCATION	NUMBER OF LANES	CURRENT CAPACITY (pcph)	1996 PEAK HOUR TRAFFIC VOLUMES	1996 LEVEL OF SERVICE	2018 LEVEL OF SERVICE
State Road 4	2	2,375	1,107	D	E
Pajarito Road	2	1,900	700	D	E

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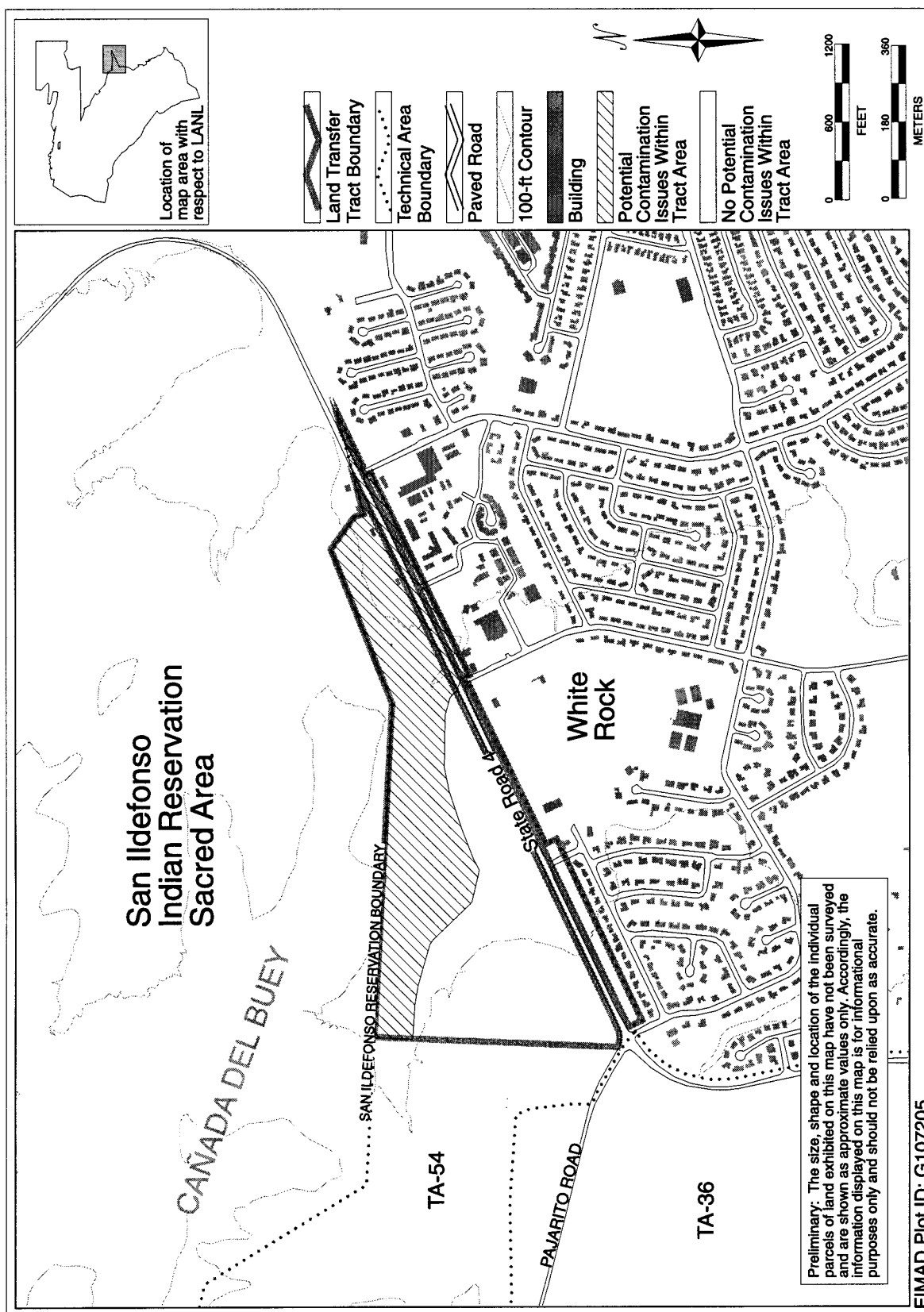


Figure 14.1.1.1-1. White Rock Tract Potential Contamination Issue Areas.

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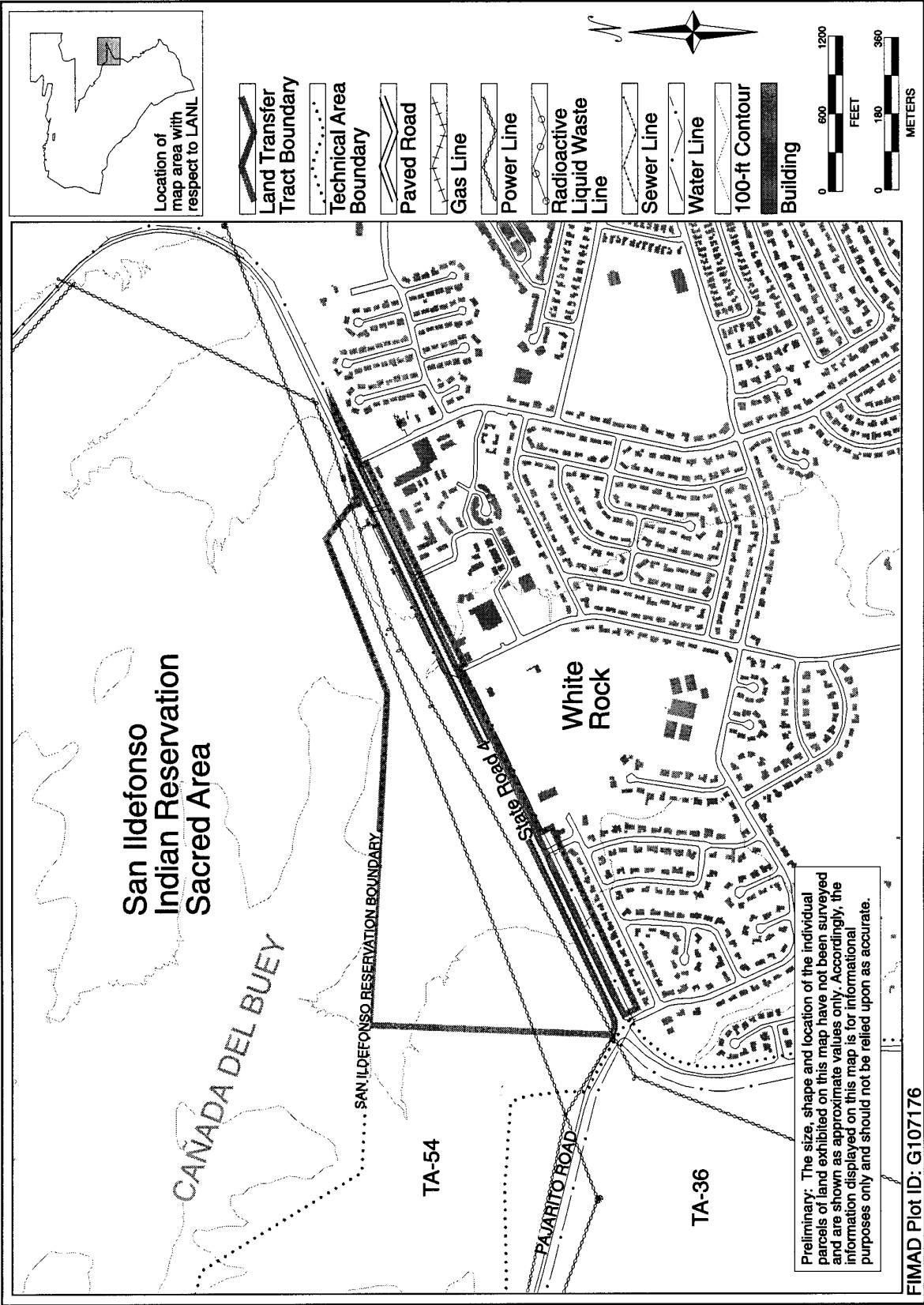


Figure 14.1.3-1. White Rock Tract Utilities and Infrastructure.

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14.1.4 Noise

The White Rock Tract is undeveloped except for utility lines, the Visitor Center, and a water pump station. It is bounded on the north by the San Ildefonso Pueblo, an area largely unused. Its western edge is formed by TA 54, but disposal activities are located about 1 mile (1.6 kilometers) away. Contributions to ambient noise levels, therefore, come from the southern borders of this triangular-shaped tract (State Road 4 and the town of White Rock). Measurements of noise levels in White Rock itself have been made and were found to range from 38 to 51 decibels, A-weighted (dBA) (DOE 1999c, Chapter 4). However, noises along the southern border of this tract, especially immediately adjacent to the State highway, are estimated to be higher (in the range of 60 to 70 dBA).

14.1.5 Visual Resources

The White Rock Tract is located along the north side of State Road 4 across from the town of White Rock. Most of the site is forested, but there are some structures on the east end of the tract. Views into this area are mainly from State Road 4 and the development along the road. The tract includes areas north of the boundary of San Ildefonso Pueblo. Views into this site are primarily from San Ildefonso Pueblo. This tract was analyzed by assigning two rating units to the tract based on the proximity to State Road 4. Rating Unit 1 extends along State Road 4 and across State Road 4 from the development in White Rock along the southeast side of the road. Rating Unit 2 includes the remaining area, roughly triangular in shape beyond Rating Unit 1 to the northwest.

Scenic quality, distance zone, and sensitivity levels were combined using the Inventory Class Matrix. Visual resources in Rating Unit 1 were judged to be Scenic Class III, moderate public value, and

resources in Rating Unit 2 were determined to be Scenic Class IV, low public value.

14.1.6 Socioeconomics

The most meaningful economic region of influence (ROI) for all of the tracts is the regional setting described in Chapter 3 of this CT EIS. Labor and housing markets extend well beyond any of the tract boundaries affected by the proposed land transfer.

The White Rock Tract is used currently only for utilities and the Visitor Center. There is little or no employment associated with the tract.

14.1.7 Ecological Resources

The White Rock Tract is covered by approximately 75 percent pinyon-juniper woodland vegetation and 20 percent developed areas (roadway, a pump station, and the Visitor Center). The remaining areas are occupied by shrubs, grasslands, and wildflowers. Surface water channels associated with Cedro, Mortandad, Cañada del Buey, Sandia, and Pajarito Canyons are present on or close to this tract. One floodplain (Cañada del Buey) crosses this tract. Wetlands have been identified in association with the floodplain. See Appendix D for further description of the wetlands and floodplains. Pajarito Canyon, located south and west of the tract, contains wetlands within the stream channel. Flora and fauna present within the tract are expected to be characteristic of the region. Habitat for the American peregrine falcon and bald eagle has been identified in this tract. No area of environmental interest (AEI) overlaps the White Rock Tract (PC 1999d). However, the southwestern willow flycatcher AEI core zone is adjacent to, but not within, the southwestern edge of the tract. No southwestern willow flycatcher habitat exists within the White Rock Tract. Noise in the vicinity results from road traffic on State Road 4 and Pajarito Road. Portions of this

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tract are illuminated at night by commercial lighting from adjacent developed areas in White Rock.

14.1.8 Cultural Resources

The White Rock Tract was used from the Coalition period through the Nuclear Energy period. The tract was part of the Ramon Vigil Spanish land grant. The ROI for this tract includes the land tract itself, plus nearby cultural resources located off the tract. For this tract, these nearby resources are located on San Ildefonso Pueblo and LANL lands.

One hundred percent of the White Rock Tract has been inventoried for historic and prehistoric cultural resources. Survey results indicate that there are four prehistoric sites and one historic site within the tract. Three of the prehistoric sites have been evaluated as eligible for listing on the National Register of Historic Places (NRHP) and one as potentially eligible. The one historic site, a Cold War era structure, has been evaluated as not eligible for the NRHP. There is a potential for unidentified resources, including subsurface archaeological deposits and unrecorded burials.

Formal consultations to identify traditional cultural property (TCP) resources have not been conducted. It is probable that TCPs will be identified during further consultations with Native American and Hispanic groups regarding the traditional uses of this tract. The Pueblo of San Ildefonso has indicated, in general terms, that TCPs are present on this tract. TCPs would not be anticipated in developed parts of the tract.

Additional information on the cultural resources of the White Rock Tract is presented in Appendix E of this CT EIS.

14.1.9 Geology and Soils

Current activity at the tract is limited to the continued use of the Visitor Center, the electrical substation, and power lines

(DOE 1998b). Existing structures are vulnerable to greater than magnitude 7 seismic events and wildfire episodes. Soil members include the Penistaja sandy loam, the Servilleta loam, and the Prieta silt loam. No major surface faulting is evident on this tract.

14.1.10 Water Resources

Figure 14.1.1-1 shows the location of the White Rock Tract. The tract is transected by Cañada del Buey, which is an ephemeral stream in the vicinity of the tract. There are no known springs within the tract. There are no regional aquifer water supply wells or test wells within 0.5 mile (0.8 kilometer) of this tract. The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) identifies wetlands in the White Rock Tract. Assessment of these wetlands is included in Appendix D.

There is one stream gage within the White Rock Tract, which is the only surface water monitoring station on the tract. There is another stream gage upstream of the tract in Pajarito Canyon where water quality is monitored. There are no groundwater monitoring stations located within the tract. The closest groundwater monitoring locations maintained by the LANL Environmental Surveillance and Compliance Program are for shallow groundwater and do not pertain to water quality or quantity associated with this tract.

The White Rock Tract lies within the 100-year floodplain. Assessment of this floodplain is included in Appendix D.

14.1.11 Air Resources

The White Rock Tract consists of 100 acres (40 hectares) and is relatively removed from LANL activities. Because LANL activities are a distance away, contributions to air quality come primarily from the southern borders of this triangular-

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shaped tract (State Road 4 and the town of White Rock).

Air quality at the tract is high. Neither hazardous nor radioactive air pollutant sources exist at the tract. Small amounts of ozone generated from hydrocarbons and carbon dioxide are emitted by vehicles passing through the southern edge of the tract on State Road 502; but no criteria pollutants are emitted from anywhere else on this large tract of land. The tract is part of New Mexico Region 3, an attainment area that meets National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

Approximately 40 different hazardous and other chemicals have been used at TA 54; almost all of these are used at the small laboratories at the entrance to TA 54 at its western edge, a distance of about 3 miles (5 kilometers) from the White Rock Tract. Chemical use at both TA 18 and TA 36 is limited, with small quantities of 15 chemicals reported for TA 18, and small quantities of just 8 chemicals reported for TA 36. Analyses performed for the LANL SWEIS estimate that concentrations of chemical air pollutants will not exceed health-based standards for any point beyond the LANL boundary (DOE 1999c, Chapter 5), and no adverse health effects are expected. From this information, we can extrapolate that the same conclusion can be applied to the White Rock Tract for emissions from TA 18 and TA 36. Concentrations of chemicals used at TA 54 are all from 1 percent to 10 percent of health-based standards at the TA 54 boundary. Therefore, it is probable that concentrations at the White Rock Tract also are below health-based standards.

Estimates for this location indicate doses from radioactive emissions from LANL to residents of White Rock. From the three nearest technical areas, estimated doses are 0.01, 0.24, and 0.02 millirem per year from TA 18, TA 36, and TA 54, respectively (DOE 1999c, Appendix B). The combined

dose is thus less than 10 percent of the EPA standard of 10 millirem per year.

14.1.11.1 Global Climate Change

At present, this tract sits largely idle. Heating is required for the Visitor Center and one LANL water pumping station at the White Rock Tract. Carbon dioxide emissions are estimated to be 23 tons (21 metric tons) per year. There are no other greenhouse gas emissions.

14.1.12 Human Health

14.1.12.1 The Radiological Environment for the White Rock Tract

No people reside on this tract. Only a part-time staff works on this land, and visitors remain there only for a short time. It is expected that radiation doses are much less than that to the LANL offsite maximally exposed individual (MEI) due to the much greater distance from the LANL primary source of radioactive air emissions (the Los Alamos Neutron Science Center [LANSCE]). Similarly, background radiation doses are essentially the same as for the Los Alamos townsite. While there are no PRSs on this tract, there are known sources of radioactive contamination from silt migration along the canyon areas.

14.1.12.2 The Nonradiological Environment for the White Rock Tract

Exposures to nonradiological contaminants via the airborne pathway in the LANL vicinity have already been shown to be minor for the affected environment (DOE 1999c). No PRSs or other known sources of nonradiological contamination exist for this tract. Therefore, no additional nonradiological exposures would be expected.

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14.1.12.3 Facility Accidents

Chemical Accidents

The LANL SWEIS posits six chemical accidents, as discussed in Chapter 4, Section 4.1.12 of this CT EIS. For all postulated accidents, chemical concentrations in the air plume released by the potential accidents would be below both Emergency Response Planning Guideline (ERPG)-3 (life-threatening) and ERPG-2 (serious health effects) by the time any air plume reaches the White Rock Tract, even under adverse weather dispersion conditions. Accordingly, chemical accidents have no estimated public consequences at the tract.

Radiological Accidents

There are 13 credible radiological accident scenarios postulated in the LANL SWEIS, as discussed in Chapter 4, Section 4.1.12 of this CT EIS. Using data from the LANL SWEIS, doses to the MEI at the White Rock Tract have been estimated for each of these, as shown in Table 14.1.12.3-1.

Because there are no residents and few public workers at the tract, estimated tract collective dose and estimated excess latent cancer fatality (LCF) are both zero.

Natural Event Accidents

There are five natural event accident scenarios postulated in the LANL SWEIS: four earthquakes and one wildfire. The most severe earthquake (accident SITE-03B) has an estimated frequency of 3×10^{-5} per year, or once every 330,000 years. The postulated earthquake would release chemicals from a number of facilities, including formaldehyde from the Health Research Laboratory (Building 43-01) and chlorine from the chlorinating station within the Los Alamos townsite (Building 00-1109). As discussed, earthquakes would have no estimated chemical consequences at the White Rock Tract. The most severe postulated earthquake, however, would release significant quantities

of radioactive materials from several buildings, especially from the Chemistry and Metallurgy Research (CMR) Building (Building 03-29). Radiological consequences are estimated to result in a maximum dose of approximately 6 Roentgen equivalent man (rem) at the tract.

The postulated site wildfire scenario would burn about 8,000 acres (3,240 hectares) within LANL boundaries, or about 30 percent of LANL, including most of Mortandad Canyon and parts of Los Alamos and DP Canyons east of TA 21. Chemical releases would be less severe than in the earthquake scenarios. The largest quantities of radioactive materials would be released from the transuranic (TRU) waste storage domes at Area G, about 1 mile (1.6 kilometers) from the White Rock Tract. The maximum dose at the tract is estimated to be about 1 rem. Such wildfire has an estimated frequency of 0.1 per year, or once every 10 years.

Because there are no residents and few public workers at the tract, estimated tract collective dose and estimated excess LCF are both zero for all natural event accident scenarios.

14.1.13 Environmental Justice

Any disproportionately high and adverse human health or environmental effects on minority or low-income populations that could result from the actions undertaken by the DOE are assessed for the 50-mile (80-kilometer) area surrounding LANL, as described in Chapter 3, Section 3.2.1.14.

14.2 No Action Alternative

14.2.1 Land Use

Under the No Action Alternative, there would be no anticipated changes in land use. The tract would continue to provide electricity and water to portions of LANL, and the Chamber of Commerce would

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Table 14.1.12.3-1. MEI Doses for the White Rock Tract Resulting from Hypothetical Accidents at LANL Facilities

ACCIDENT SCENARIO	ACCIDENT LOCATION	FACILITY	FREQUENCY PER YEAR	MEI DOSE (mrem)	ACCIDENT DESCRIPTION
RAD-01	54-38	RANT	1.6×10^{-3}	53	Fire in the outdoor container storage area
RAD-02	03-29	CMR	1.5×10^{-6}	2,400	Natural gas pipeline failure
RAD-03	18-116	Kiva #3	4.3×10^{-6}	71	Power excursion at the Godiva-IV fast-burst reactor
RAD-05	21-209	TSTA	9.1×10^{-6}	0	Aircraft crash
RAD-07	50-69	WCRR	3.0×10^{-4}	35	Fire in the outdoor container storage area
RAD-08	54-230	TWISP	4.3×10^{-6}	1,500	Aircraft crash
RAD-09A	54-226	TWISP	4.9×10^{-1}	23	Puncture or drop of average-content drum of transuranic waste
RAD-09B	54-226	TWISP	4.9×10^{-3}	1,200	Puncture or drop of high-content drum of transuranic waste
RAD-12	16-411	--	1.5×10^{-6}	1,500	Seismic-initiated explosion of a plutonium-containing assembly
RAD-13	18-116	Kiva #3	1.6×10^{-5}	100	Plutonium release from irradiation experiment at the Skua reactor
RAD-15A	03-29	CMR	3.6×10^{-5}	11	Fire in single laboratory
RAD-15B	03-29	CMR	3.2×10^{-5}	210	Fire in entire building wing
RAD-16	03-29	CMR	3.5×10^{-6}	2	Aircraft crash

Notes: mrem = millirem; RANT = Radioactive Assay and Nondestructive Test; TSTA = Tritium Systems Test Assembly; WCRR = Waste Characterization, Reduction, and Repackaging; TWISP = Transuranic Waste Inspectable Storage Project

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continue to staff and operate the Visitor Center. Similarly, there would be no changes in access to the tract.

14.2.1.1 Environmental Restoration

Characterization and cleanup of this tract would take place as described in DOE's *Accelerating Cleanup: Paths to Closure* (DOE 1998c) or similar plans. The plan focuses on completing work at as many contaminated sites as possible by the end of fiscal year 2006, although some LANL sites could take longer. The plan includes input from all major field sites, including LANL.

The DOE has developed preliminary information based on current knowledge of contamination at the White Rock Tract, as briefly discussed in the Affected Environment portion of this chapter, Section 14.1.1.1. Information includes estimates of sampling and cleanup costs, decommissioning costs, types and volumes of wastes that would be generated, and length of time required to effect the cleanup. An overview of this preliminary information is set forth in Appendix B of this CT EIS. All information has been extracted from the Environmental Restoration Report to Congress (DOE 1999b).

This information indicates no structures are likely to require decommissioning. Some removal of contaminated sediments may be required. This cleanup would last up to 16 months and result in approximately 940 cubic yards (720 cubic meters) of waste. Cost estimates for remedial action at this parcel range from about \$954,000 to \$3,374,000. These estimates are based on the information currently available for each PRS or structure, and are subject to change if significantly different information is discovered during the course of investigation or remediation. It should be noted that all PRSs, including those at which no remediation is ultimately required, must be characterized, and the results must be

reported to the administrative authority. As a consequence, there are almost always costs and wastes associated with PRSs that do not require actual "cleanup." It is possible, however, that the administrative authority could require even more restoration, resulting in greater waste volumes, a longer cleanup duration, and higher costs. It also should be noted that environmental restoration actions and costs represent only a portion of the actions and total costs that may be required for conveyance and transfer of this parcel. These additional costs may be significant.

14.2.2 Transportation

The No Action Alternative would result in no significant changes in traffic volume on State Road 4 or Pajarito Road near the site. It is expected that the future operational performance of Pajarito Road and State Road 4 would remain similar to that of the existing performance, assuming that the future annual growth rate is 1.5 percent as predicted the U.S. Census Bureau.

14.2.3 Infrastructure

The No Action Alternative would result in no changes in the infrastructure or utilities of the White Rock Tract. Thus, implementing the No Action Alternative would have no new impacts to the utilities and infrastructure.

14.2.4 Noise

In the No Action Alternative, some increase in traffic would occur along State Road 4 due to an increase in overall LANL employment of about 21 percent. This traffic increase would only slightly modify noise levels in the White Rock Tract and would have no effect at all in parts of the tract that are removed from the highway. Noise levels would thus remain at 60 to 70 dBA along the highway and less than 40 dBA on other parts of the tract.

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14.2.5 Visual Resources

Under the No Action Alternative, the visual resource of the tract would remain much as it is today. The forested areas that include some manmade modifications would not be expected to change with regard to the visual character.

14.2.6 Socioeconomics

Under the No Action Alternative, there would be no anticipated changes in land use or change in employment on the tract.

14.2.7 Ecological Resources

Under the No Action Alternative, there would be no changes in land use at White Rock Tract, as described in Section 14.1.1. Therefore, no impact to ecological resources would be anticipated under the CT EIS No Action Alternative.

14.2.8 Cultural Resources

Under the No Action Alternative, the White Rock Tract would remain the responsibility of the DOE, and the treatment of the cultural resources present would continue to be subject to Federal laws, regulations, guidelines, executive orders, and Pueblo Accords. Other positive impacts of the No Action Alternative would be the passive preservation of cultural resources due to lack of development.

Ongoing negative impacts from natural processes (such as erosion, fire, or seismic events) on the physical integrity of cultural resources would continue. Also, the potential for impacts from access by the public and the lack of security would continue. These impacts include unintentional destruction or damage of resources, vandalism, and unauthorized collection of materials and artifacts. These impacts would apply both to resources within the tract and to those located nearby but outside the tract boundary on LANL and San Ildefonso Pueblo lands.

14.2.9 Geology and Soils

No Action Alternative consequences would be limited to existing tract uses. The tract is already developed; no additional utilities, roadwork, or buildings are required. No soil disturbance or change in availability of resources would be anticipated.

14.2.10 Water Resources

Continuation of the current use of this tract by the DOE would be anticipated under this alternative. Consequences to water resources under the No Action Alternative would be no different than those already existing in the affected environment.

14.2.11 Air Resources

In the No Action Alternative, there would be no anticipated changes in land use. LANL activities at adjacent technical areas would increase, but air quality would be largely unchanged from that of today. Criteria pollutant concentrations would remain within NAAQS. Concentrations of hazardous and other chemical air pollutants would remain below health-based standards. Doses from radioactive pollutants would increase slightly. From the three nearest technical areas, estimated doses are 0.01, 0.72, and 0.02 millirem per year from TA 18, TA 36, and TA 54, respectively. (DOE 1999c, Appendix B). The combined dose would be less than 10 percent of the EPA standard of 10 millirem per year.

14.2.11.1 Global Climate Change

There would be no change in facilities or levels of activity in the No Action Alternative. Carbon dioxide emissions would continue at approximately 23 tons (21 metric tons) per year.

14.2.12 Human Health

There would be no identifiable consequences of implementing the No Action

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Alternative for the White Rock Tract. No changes in cancer risk should be expected for this alternative.

14.2.12.1 Chemical Accidents

Accident assessment would be the same as described in the Affected Environment section of this chapter. For all postulated accidents, chemical concentrations in the air plume released by potential chemical accidents would be below both ERPG-3 (life-threatening) and ERPG-2 (serious health effects) by the time any air plume reaches the White Rock Tract, even under adverse weather dispersion conditions. Accordingly, chemical accidents would have no estimated public consequences at the tract.

14.2.12.2 Radiological Accidents

Accident assessment would be the same as described in the Affected Environment section of this chapter. MEI doses would be greater than 500 millirem for 4 of 13 scenarios postulated in the LANL SWEIS. The estimated tract collective dose and estimated excess LCF would both be zero.

14.2.12.3 Natural Event Accidents

Accident assessment would be the same as described in the Affected Environment section of this chapter. Neither the wildfire nor any of the earthquakes would have chemical consequences, even under adverse weather dispersion conditions. The MEI dose resulting from the postulated wildfire would be about 1 rem due to releases from TRU waste storage domes at Area G; the maximum dose from the most severe earthquake would be approximately 6 rem. Because there would be no residents and few public workers at the tract, estimated tract collective dose and estimated excess LCF would both be zero for all natural event accident scenarios.

14.2.13 Environmental Justice

For environmental justice impacts to occur, there must be high and adverse human health or environmental impacts that disproportionately affect minority or low-income populations. The human health analyses indicate that air emissions and hazardous chemical and radiological releases from normal LANL operations, which would continue under the No Action Alternative, would be expected to be within regulatory limits and that no excess LCFs would likely result. The human health analyses also indicate that radiological releases from accidents would not result in disproportionate adverse human health or environmental impacts. Therefore, such accidents would not have disproportionately high and adverse impacts on minority or low-income populations.

The analyses also indicate that socioeconomic changes resulting from implementing the No Action Alternative would not lead to environmental justice impacts. Employment and expenditures would remain unchanged from the baseline.

14.3 Proposed Action Alternative

There are no DOE facilities or activities on this tract that would have to be relocated or otherwise affected by the proposed disposition of this tract, except for an environmental media monitoring station. No environmental effects would be associated with the relocation of the site's surface water monitoring station. Therefore, there would be no direct consequences of the transfer of ownership of the tract other than those associated with potential loss of Federal protection of cultural and ecological resources (see Sections 14.3.7 and 14.3.8, respectively).

Indirect consequences would be anticipated from the subsequent uses of the tract contemplated by the receiving party or parties. The contemplated uses and the associated consequences are discussed in the

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following sections. The potential relocation of or effects on currently existing non-DOE facilities or activities are considered indirect consequences and are discussed in the following sections as appropriate.

14.3.1 Land Use

14.3.1.1 Description of Contemplated Uses

Land use identified for the White Rock Tract includes commercial and residential development, and cultural preservation and commercial development (see Figure 14.3.1.1-1 and Figure 14.3.1.1-2). The following paragraphs provide a description of each of these scenarios.

Commercial and Residential Development Land Use Scenario

Land use proposed under this scenario would include both commercial and residential development areas. As proposed, residential areas would include approximately 5 acres (2 hectares) of medium-density residential areas based on a developed density of 12 dwelling units per acre, and approximately 35 acres (14 hectares) of high-density residential areas at a density of 20 dwelling units per acre. Residential development would assume an average population of approximately 2.5 people per household for a total of 1,900 new residents. Commercial development would include approximately 20 acres (8 hectares) for a recreational vehicle park, which would result in up to 400 temporary lodgers on the tract at any given time. Additionally, approximately 40 acres (18 hectares) surrounding and between the developed areas would be maintained as open space.

Cultural Preservation and Commercial Development Land Use Scenario

Land use under this scenario would be divided between ensuring preservation of portions of the tract and developing other parts of the tract for commercial purposes. Commercial development would likely be limited to lands adjacent to State Road 4, across from the White Rock commercial district development. Upslope portions of the tract would be held in preservation where access by the general public would be eliminated. The Visitor Center could be required to be relocated and the building may be razed. However, the lease of the land to the County would be expected to transfer to the new owner and the facility would be expected to remain operational at least for the duration of the current lease agreement.

Table 14.3.1.1-1 and Table 14.3.1.1-2 summarize the attributes of land use proposed for the White Rock Tract under each of these scenarios.

14.3.1.2 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

The increased density associated with the development of the White Rock Tract under the commercial and residential development land use scenario would result in a notable change in land use patterns in the White Rock community. High-density residential land use would increase by roughly 75 percent. A small, medium-density residential area also would be developed. Use of the recreational vehicle park on a portion of the tract likely would be of high use only on a seasonal basis. The 20 acres (8 hectares) would provide for an estimated 160 recreational vehicle spaces.

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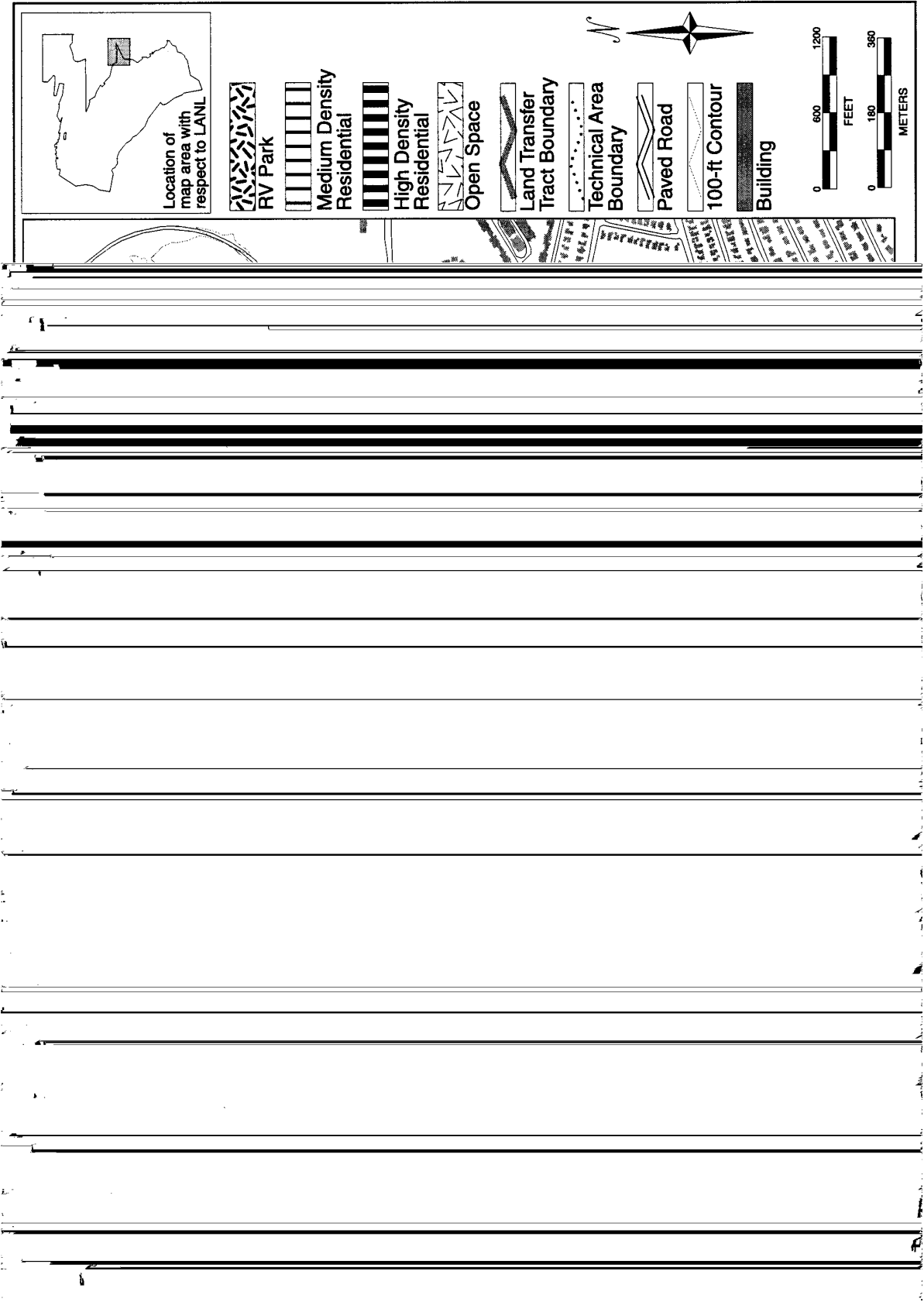


Figure 14.3.1.1-1. White Rock Tract Commercial and Residential Development Land Use Scenario.

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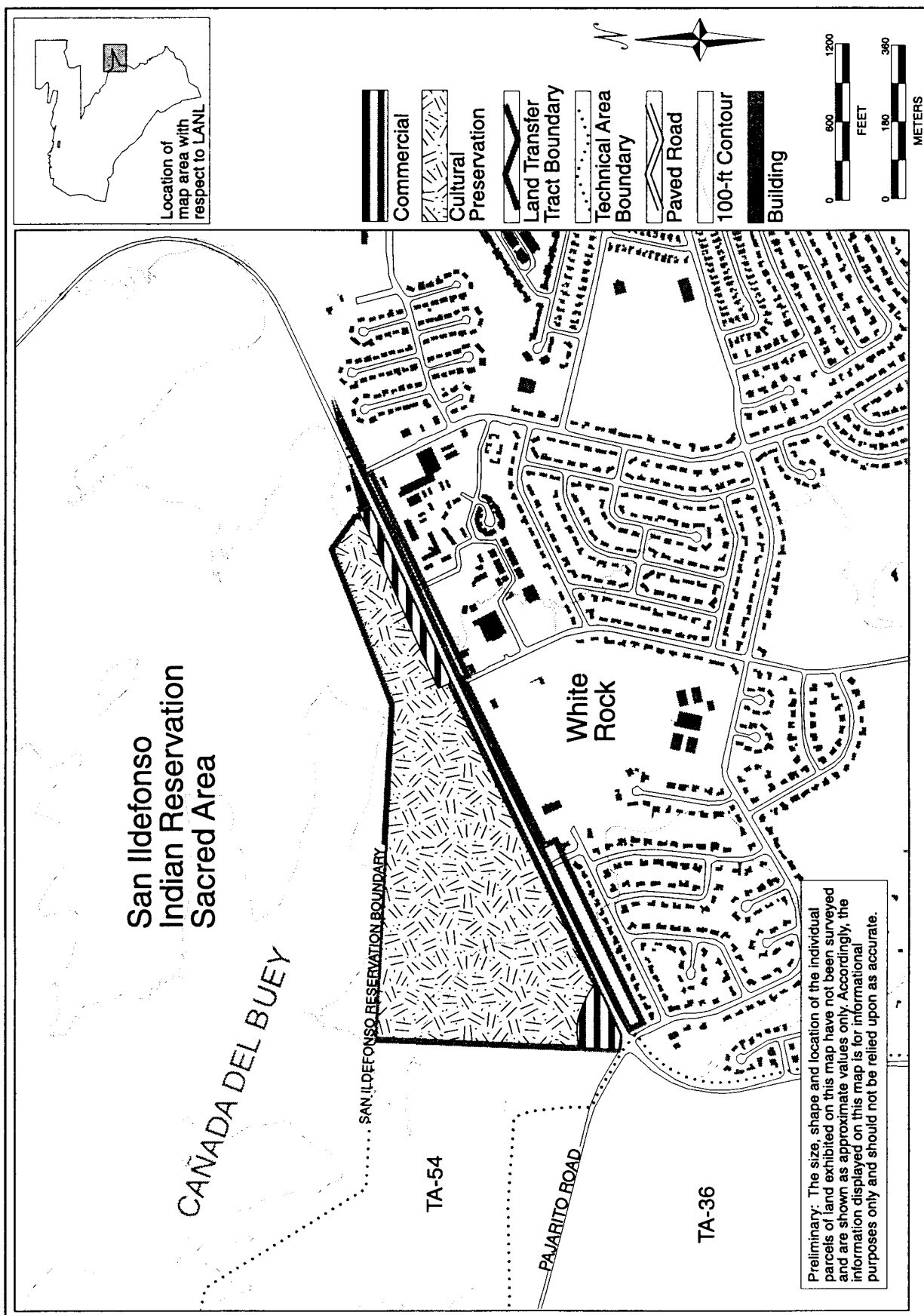


Figure 14.3.1.1-2. White Rock Tract Cultural Preservation and Commercial Development Land Use Scenario.

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Table 14.3.1.1-1. Attributes of Future Residences Land Use for the White Rock Tract Under the Commercial and Residential Land Use Scenario

COMMERCIAL AND RESIDENTIAL DEVELOPMENT
<ul style="list-style-type: none">• About 20 acres (8 hectares) would be developed as a recreational vehicle park with 160 spaces.• About 5 acres (2 hectares) would be developed as residences at a density of 12 dwelling units per acre.• About 35 acres (approximately 14 hectares) would be developed as residences at a density of 20 dwelling units per acre.• When fully developed, there would be 760 new dwelling units, 2,200 new residents, and 1,730 personal vehicles, including recreational vehicles and their occupants.• About 40 acres (18 hectares) surrounding and between the developed areas would remain as open space.• Visitor Center and water pumping station would remain.

There is a critical shortage of affordable housing in the Los Alamos/White Rock area. Although the increased residential density associated with this development would likely result in some adverse secondary impacts, it also would serve to offset the shortage of affordable housing. The population of the community would increase by about one-third.

Cultural Preservation and Commercial Development Land Use Scenario

The commercial development proposed under this scenario would not be anticipated to result in the same degree of secondary effects identified in discussions on residential density. The use of less than 10 acres

Table 14.3.1.1-2. Attributes of Future Land Use for the White Rock Tract Under the Cultural Preservation and Commercial Land Use Scenario

CULTURAL PRESERVATION AND COMMERCIAL DEVELOPMENT
<ul style="list-style-type: none">• Land use at the tract would be primarily cultural preservation with limited commercial development.• Commercial development along State Road 4 could include storage rental space and/or retail businesses on less than 10 acres (4 hectares) of land.• Upslope portions of the tract would be held in preservation where access by the general public would be eliminated.• Visitor Center and water pumping station would remain at least for the duration of the current lease agreement.• The developed portion of the tract would contain 4 businesses with 60 total employees and 2 commercial vehicles.

(4 hectares) of the tract for rental storage space or retail businesses would, for the most part, represent a continuation of existing and adjacent land use.

Preservation of portions of the tract would result in the elimination of access to the site by the general public. However, activities at the site are already limited by restrictions on access to the adjacent LANL land. As such, there would be no significant change in access to the portion of the tract proposed for cultural preservation.

14.3.1.3 Environmental Restoration

No additional environmental restoration actions would be required under the Proposed

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Action Alternative because restoration activities must occur before the tract would be considered suitable for conveyance or transfer.

14.3.2 Transportation

14.3.2.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

The commercial and residential development land use scenario anticipates development of additional open space and residential and commercial facilities. The Institute of Transportation Engineers (ITE) land use codes were utilized to estimate the trips generated by these proposed developments. These ITE land uses represent

the medium-density residential, high-density residential, and recreational vehicle park.

Table 14.3.2.1-1 shows the number of additional trips the ITE Trip Generation Manual (ITE 1997) estimates could be generated by this development.

As shown in the table, the proposed development would add 378 exiting trips to State Road 4 and State Road 502 in the weekday morning peak hour and an additional 374 entering trips in the weekday evening peak hour. This combination of land uses also could add up to 5,815 new trips on State Road 4. These additional trips would cause the LOS for the two-lane section of State Road 4 to degrade below LOS F (traffic jam conditions). In order to avoid these unacceptable operating conditions, widening State Road 4 to four lanes would be necessary

Table 14.3.2.1-1. Estimated Increase in Traffic for the Commercial and Residential Development Land Use Scenario

ITE ESTIMATED TRAFFIC VOLUMES FOR WHITE ROCK TRACT								
Land Use	ITE Land Use Code	24 Hour Two-Way Volume	Morning Peak Hour Trips		Evening Peak Hour Trips		Saturday Peak Hour Trips	
			Enter	Exit	Enter	Exit	Enter	Exit
Residential Condominium – 5 acres (2 hectares)	230	387	5	24	24	12	17	15
Apartments – 35 acres (14 hectares)	220	4,668	56	303	296	141	0	0
Recreational Vehicle Park – 20 acres (8 hectares)	240	760	11	51	54	32	39	37
Total		5,815	72	378	374	185	54	52

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to accommodate the additional level of traffic volume. The section of State Road 4 that is currently four lanes would operate at LOS B (good operating conditions with stable traffic flow) with the additional trips. Pajarito Road would continue to operate at LOS E (maximum capacity) under this land use scenario.

Cultural Preservation and Commercial Development Land Use Scenario

In the event that the cultural preservation and commercial development land use is implemented, it is likely that transportation impacts would be similar to the No Action Alternative.

14.3.3 Infrastructure

14.3.3.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

Development of this nature would require enhancement of existing utilities. Water, electricity, gas, and sewage lines would need to be extended to service new structures. Additionally, utility usage would increase.

The indirect environmental impacts with regard to utilities and infrastructure resulting from this alternative fall into two categories: (1) increased utility usage and (2) ground disturbance resulting from construction of new facilities. Table 14.3.3.1-1 shows the estimated increase in power, electricity and gas and water usage, and wastewater and solid waste production. It is not anticipated that these increases would exceed the capacity for any utility in the region.

Installation of new utility facilities and upgrades to existing ones would require creation of trenches and access and maintenance roads. The construction of roads, parking areas and buildings, and extension of utility lines would cause soil disturbance. Refer to Section 14.3.9 of this chapter for

detail on impacts resulting from ground disturbance from new construction.

Cultural Preservation and Commercial Development Land Use Scenario

Under this land use scenario, only a small portion would be developed for commercial use. It is anticipated that no more than four businesses would be developed on the tract and would be located adjacent to State Road 4 on soil that has already been disturbed. Because of the small number of anticipated business, there would be no need to upgrade the utility systems, but some extension of the existing utility lines could be required. The estimated utility usage increase brought about by the new businesses is shown in Table 14.3.3.1-2. It is not anticipated that these increases would exceed the capacity for any utility in the region.

14.3.4 Noise

14.3.4.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

One contemplated use would be commercial and residential development. Two apartment complexes would be constructed and a recreational vehicle park would be installed. Noise levels on the White Rock Tract would increase due to increased traffic and people. Noise levels along State Road 4 would likely remain in the range of 60 to 70 dBA, but significant increases would occur on the remaining parts of the tract. Consistent with residential use, noise levels on other parts of the tract would likely to increase from 40 to 50 dBA from existing levels of 20 to 30 dBA.

Cultural Preservation and Commercial Development Land Use Scenario

Another possible use for this tract would be cultural preservation and limited

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Table 14.3.3.1-1. Estimated Increase in Utility Usage for Commercial and Residential Development Land Use Scenario for the White Rock Tract

	PEAKING POWER mw	ELECTRICITY gwh	GAS mcf (mly)	WATER mgy (mly)	SEWAGE (WHITE ROCK) mgy (mly)	MSW tpy (mty)
Estimated annual increase	0.9	5.2	99 (2,800)	81 (307)	41 (155)	730 (662)
Available system capacity	5	277	5,040 (142,700)	297 (1,125)	154 (583)	NA

Notes: mw = megawatts, gwh = gigawatt-hours, mcf = million cubic feet, mly = million liters per year, mgy = million gallons per year, MSW = municipal solid waste, tpy = tons per year, mty = metric tons per year, NA = not available

Table 14.3.3.1-2. Estimated Increase in Utility Usage for Cultural Preservation and Commercial Development Land Use Scenario for the White Rock Tract

	PEAK POWER mw	ELECTRICITY gwh	GAS mcf (mly)	WATER mgy (mly)	SEWAGE (WHITE ROCK) mgy (mly)	MSW tpy (mty)
Estimated annual increase	0.04	0.2	2 (57)	2 (8)	1 (4)	4 (3.5)
Available system capacity	5	277	5,040 (142,700)	297 (1,125)	154 (583)	NA

Notes: mw = megawatts, gwh = gigawatt-hours, mcf = million cubic feet, mly = million liters per year, mgy = million gallons per year, MSW = municipal solid waste, tpy = tons per year, mty = metric tons per year, NA = not available

commercial development. Commercial development would be likely along State Road 4. Noise levels for this strip of land would continue to result primarily from highway traffic, and hence, should not change significantly from current noise levels and those of the No Action Alternative. Parts of the tract away from the highway would likely be used for cultural preservation, for which noise levels would remain unchanged from the No Action Alternative.

14.3.5 Visual Resources

14.3.5.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

One contemplated use is commercial and residential development. This development would impact the existing Scenic Class III, moderate public value visual resources, on the northwest side of State Road 4. Scenic

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Class IV, low public value visual resources, would be maintained or improved.

Cultural Preservation and Commercial Development Land Use Scenario

Another possible use for this tract is cultural preservation with limited commercial development along the eastern part of the northwest side of State Road 4. This limited development would still impact the existing Scenic Class III landscape on the northwest side of State Road 4, but to a lesser degree than the commercial and residential development land use scenario. Scenic Class IV resources would be maintained or improved.

14.3.6 Socioeconomics

14.3.6.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

The contemplated uses for the White Rock Tract include commercial and residential development. The construction of new residential areas would temporarily increase employment in the ROI. This would, in turn, generate increases in area income. These changes would be temporary, lasting only the duration of the construction period. The majority of the jobs generated would be filled by the existing ROI labor force. Therefore, there would be no impact on area employment or increase in the need for housing in the area.

There would be short-term increases in area employment and income associated with the construction of commercial facilities, and long-term increases once the facilities are operational.

Cultural Preservation and Commercial Development Land Use Scenario

Another possible use for this tract is cultural preservation with limited commercial

development along the eastern part of the northwest side of State Road 4. There would be short-term increases in area employment and income associated with the construction of the limited commercial development and long-term increases once the facilities are operational. These impacts would be greater than those for the commercial and residential development land use scenario.

Approximately 60 workers would be employed on the tract and a total of 100 jobs would be generated within the ROI, which would, in turn, increase ROI income. Because these jobs would be filled by the existing ROI labor force, there would be no impact on area population or increase in the demand for housing or public services in the ROI.

14.3.7 Ecological Resources

Direct impacts of the conveyance or transfer itself would be limited to the changes in responsibility for resource protection. Environmental review and protection processes for future activities would not be as rigorous as those which govern DOE activities.

14.3.7.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

The commercial and residential development land use scenario would include the development of approximately 60 acres (24 hectares) of pinyon-juniper woodland habitat that would be severely modified or lost. Highly mobile wildlife species, birds, or wildlife species with large home ranges (such as deer and coyotes), would be able to relocate to adjacent undeveloped areas. However, successful relocation may not occur due to competition for resources to support the increased population and the carrying capacity limitations of areas outside the proposed development. Species relocation may result in additional pressure to lands

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already at or near carrying capacity. The impacts could include overgrazing, stress, and overwintering mortality. For less-mobile species (small mammals and reptiles), direct mortality could occur during the actual construction event or ultimately result from habitat alteration. Acreage used for the development also would be lost as potential hunting habitat for raptors and other predators.

In addition to the area to be disturbed, there would be a decrease in quality of the habitat immediately adjacent to the proposed development due to increased noise level, traffic, lights, and other human activity, both pre- and post-construction. One little-addressed consequence of urban development is the influence of domestic animals upon wildlife populations. For example, free-roaming domestic cats may kill more than 100 animals each year. Studies have shown that approximately 60 percent of the wildlife cats kill are small mammals; 20 percent are birds (predation at bird feeders can be substantial; one Virginia study estimated 28 kills per urban cat per year); and 10 percent are amphibians, reptiles, and insects. Due to the presence of coyotes in the White Rock area, predation by cats would tend to be limited to within developed and closely adjacent natural areas (Goldsmith et al. 1991, Crooks 1997-98, and CSBC 1998). Free-ranging domestic dogs are known to harass and disrupt the activities of many wildlife species and are documented to have caused mortality in animals such as deer and foxes (Goldsmith et al. 1991).

Development in this tract could result in the direct loss of wetland vegetation and function. Even if construction and development does not occur in the wetland, indirect impact such as additional surface runoff from an increase of impermeable surface areas (pavement) could result in accelerated streambed erosion and increased downstream, and offsite sedimentation could

occur. Subsequently, floodplain areas may undergo boundary changes.

The adjacent habitat also would experience a loss of quality from the reduction in size, segmentation of the habitat, and restrictions on mobility for some mammals. The loss of acreage due to development would result in a reduction of breeding and foraging habitat for wildlife currently utilizing the property. There are three species that are Federal-listed as threatened or endangered that may forage in the White Rock Tract: bald eagle, American peregrine falcon, and southwestern willow flycatcher. With respect to the bald eagle and southwestern willow flycatcher, this area has a low level of potential use for foraging. The American peregrine falcon is likely to use the area for foraging.

The watershed management approach to natural resource management requires the integration of natural resource management plans across several land management agencies. The current lack of a natural resources management plan by either the County of Los Alamos or the Pueblo of San Ildefonso would impede the development of an integrated, multiagency approach to short- and long-term natural resource management strategies.

Disposition of this tract would result in a much less rigorous environmental review and protection review process for future development or other activities. Neither the County of Los Alamos nor the Pueblo of San Ildefonso have regulations that would match the Federal review and protection process such as required under the NEPA implementing regulations (40 Code of Federal Regulations [CFR] 1500-1508).

Cultural Preservation and Commercial Development Land Use Scenario

Under the cultural preservation and commercial development scenario, the potential impacts to natural resources would

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be similar but less compared to the commercial and residential development scenario. Commercial development would be limited to less than 10 acres (4 hectares) near the highway. Lands maintained in cultural preservation status would not undergo construction, thus preserving the current vegetation and wildlife habitat. Additionally, due to recreation use restriction on cultural preservation lands, impacts to wildlife disturbance, both visual and auditory, from recreational use would be diminished. Consequently, habitat for most wildlife species would be augmented and improved.

14.3.8 Cultural Resources

Direct impacts of the conveyance and transfer itself would result from the transfer of known and unidentified cultural resources out of the responsibility and protection of the DOE.

First, under the Criteria of Adverse Effect (36 CFR 800.5(a)(1)), the transfer, lease, or sale of NRHP-eligible cultural resources out of Federal control is an adverse effect. Eligible cultural resources are present in the White Rock Tract and thus could be directly impacted by the Federal action.

Second, the conveyance and transfer of this tract could potentially impact the cultural resources by removing them from future consideration under the *National Historic Preservation Act*.

Third, the disposition of this tract may affect the protection and accessibility to Native American sacred sites and sites needed for the practice of any traditional religion by removing them from consideration under the *Religious Freedom Restoration Act*, *American Indian Religious Freedom Act*, and Executive Order 13007, "Indian Sacred Sites." Finally, the disposition of this tract would affect the treatment and disposition of any human remains, funerary objects, sacred objects, and objects of cultural patrimony that may be discovered on the tract. This impact would

result from removing these items from consideration under the *Native American Graves Protection and Repatriation Act*, or from changing the way this act is applied to these remains and objects. Indirect consequences are discussed in the following sections.

14.3.8.1 Environmental Consequences of the Contemplated Uses

Indirect impacts would be anticipated from the land uses contemplated for the White Rock Tract by the receiving parties. The two land uses identified for the White Rock Tract include (1) commercial and residential development and (2) cultural preservation and commercial development. This analysis reflects the broad, planning-level impacts anticipated from each contemplated use.

Commercial and Residential Development Land Use Scenario

Under the commercial and residential development scenario, approximately 60 acres (24 hectares) would be directly disturbed by construction activities. Cultural resources are present in the tract and adjacent areas that would be impacted by the contemplated land use scenario.

Commercial and residential development would cause large-scale disturbance to any cultural resources present due to construction, grading, and trenching. These impacts would include the destruction of archaeological sites and TCP locations. Resources avoided by construction may become isolated or have their setting disturbed by the introduction of elements out of character with the resource, such as visual and audible intrusions. The development of land may cause changes to the presence or integrity of, or access to natural resources utilized by traditional communities for subsistence, religious, or other cultural activities.

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The introduction of additional full-time residents and transient users of the recreational vehicle park would increase access to cultural resources. Increased access could cause unintentional destruction and damage to resources, vandalism, unauthorized collection of materials and artifacts, and disturbance of traditional practices and ceremonies.

The construction of transportation infrastructure would have similar impacts on cultural resources as described for residential and commercial construction and also would increase access to cultural resources.

Cultural Preservation and Commercial Development Land Use Scenario

Under the cultural preservation and commercial development scenario, the level portions of the White Rock Tract would be used for commercial enterprises, and upslope areas would be dedicated to cultural preservation and cultural stewardship needs by the receiving party. Access to the cultural preservation lands by the general public would be restricted to protect culturally important resources. Cultural preservation uses and users will be defined by the receiving party.

Commercial development would be limited to less than 10 acres (4 hectares) adjacent to the highway. This development would cause large-scale disturbance to any cultural resources present due to construction, grading, and trenching. These impacts would include the destruction of archaeological sites and TCP locations. Resources avoided by construction may become isolated or have their setting disturbed by the introduction of elements out of character with the resource, such as visual and audible intrusions. The development of land may cause changes to the presence or integrity of, or access to natural resources utilized by traditional communities for subsistence, religious, or other cultural activities.

Dedicating portions of the tract to cultural preservation would be anticipated to have a beneficial impact on the cultural resources present. The restriction of access by the general public is anticipated to help protect the resources from vandalism, unauthorized collection of materials and artifacts, and disturbance of traditional practices and ceremonies. Another positive impact would be the passive preservation of resources and continued access to TCPs afforded to traditional practitioners of the receiving party. There also may be potential impacts to some current traditional users if general access is precluded or restricted.

14.3.9 Geology and Soils

14.3.9.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

The commercial and residential land use identified for the White Rock Tract would result in a total of 60 acres (24 hectares) of disturbed land in this tract. Any structures constructed would be vulnerable to greater than magnitude 7 seismic events (as registered on the Richter scale) and wildfire episodes.

Cultural Preservation and Commercial Development Land Use Scenario

The cultural preservation and commercial development land use scenario would limit the commercial development to less than 10 acres (4 hectares), resulting in fewer ground disturbing impacts.

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14.3.10 Water Resources

14.3.10.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Land Use Scenario

Commercial and residential development may potentially affect surface water quality and quantity within and downstream of the tract. Development would not affect groundwater quality or quantity beneath the tract but may contribute to the overall regional water level decline and possibly result in degradation of water quality within the aquifer.

Surface water quantity within the Cañada del Buey drainage may potentially increase as a result of stormwater runoff from paved roads and developed areas. The tract lies within the 100-year and 500-year floodplains. The potential for flooding would increase with the denudation of the area or the area upstream by either development of the tract or natural causes such as a wildfire.

Surface water quality could be impacted during construction and development of the tract as stormwater runoff may increase over areas that have been denuded and carry sediments and surface contaminants into the drainages.

Cultural Preservation and Commercial Development Land Use Scenario

Cultural preservation and limited commercial development would not affect surface water quality or quantity within or downstream of this tract. Limited commercial development would not affect groundwater quality or quantity beneath the tract, but may contribute slightly to the overall regional water level decline. Degradation of groundwater quality is not likely.

14.3.11 Air Resources

14.3.11.1 Environmental Consequences of the Contemplated Uses

Commercial and Residential Development Land Use Scenario

With this development scenario, air quality would be slightly deteriorated, but would remain high. Additional emissions of ozone generated from hydrocarbons and carbon monoxide would result from increased vehicle traffic and from residential heating needs. The region would remain an attainment area, however, and concentrations of criteria pollutants would remain within State and Federal standards for ambient air quality. LANL activities would remain the source of hazardous and other chemical pollutants. However, as discussed previously for the No Action Alternative, concentrations of chemical air pollutants would not exceed health-based standards. Finally, doses from radioactive air pollutants would be no different than estimated for the No Action Alternative (less than 1 millirem per year).

Cultural Preservation and Commercial Development Land Use Scenario

Another possible use for this tract would be cultural preservation and limited commercial development. Air quality would remain high as in the No Action Alternative. There would be no emissions of hazardous or radioactive air pollutants, and concentrations would remain below EPA and other health-based standards. There would be a slight increase in emissions of criteria pollutants as compared to the No Action Alternative; but concentrations would remain safely within State and Federal standards for ambient air quality.

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14.3.11.2 Global Climate Change

Commercial and Residential Development Land Use Scenario

Residential use would include construction of about 760 apartments on 40 acres (16 hectares), resulting in an estimated 1,900 new residents and 1,600 personal vehicles. Sources of carbon dioxide include vehicular use and space and water heating. Commercial plans would include a 20-acre (8-hectare) recreational vehicle park, with assumed space for 160 recreational vehicles and up to 400 lodgers. Sources of carbon dioxide include vehicular use and heating. This development would lead to estimated emissions of about 14,000 tons (13,000 metric tons) of carbon dioxide per year, a large increase over emissions estimated for the No Action Alternative (23 tons [21 metric tons] per year).

Cultural Preservation and Commercial Development Land Use Scenario

For this scenario, development would be assumed to be limited to a strip of land along State Road 4, allowing for construction of only about four new businesses. The Visitor Center and LANL pumping station may be eliminated. These commercial heating needs would result in estimated emissions of about 150 tons (140 metric tons) of carbon dioxide annually. Other greenhouse gases are not likely.

14.3.12 Human Health

14.3.12.1 Environmental Consequences of the Contemplated Uses

Residential and commercial development would bring an estimated 2,200 new residents and visitors into closer proximity to LANL facilities, thereby increasing the number of members of the public exposed to radiological and chemical air pollutants emitted by LANL operations. Residential development also would introduce more

sensitive receptors, such as children and pregnant females, to an area that currently hosts only LANL-related workers. While all doses would be within health-based standards established by other Federal agencies, the closer proximity would increase the radiation dose received by the collective population within a 50-mile (80-kilometer) radius of LANL. In addition, closer public proximity would result in greater public consequences from some hypothetical accidents at LANL facilities. For the other contemplated land use, cultural preservation with limited commercial development, these same human health consequences would result, but to a much smaller extent (an estimated 60 workers).

14.3.12.2 Chemical Accidents

Accident assessment would be the same as described in the No Action Alternative. For all postulated accidents, chemical concentrations in the air plume released by potential chemical accidents would be below both ERPG-3 (life-threatening) and ERPG-2 (serious health effects) by the time any air plume reached the White Rock Tract, even under adverse weather dispersion conditions. Accordingly, chemical accidents would have no estimated public consequences at the tract).

14.3.12.3 Radiological Accidents

Regardless of land use subsequent to transfer of ownership, the MEI dose at this tract would be the same as described in the No Action Alternative. MEI doses would be greater than 500 millirem for 3 of 13 scenarios postulated in the LANL SWEIS: 2,400 millirem for RAD-02 (natural gas pipeline failure, explosion, and fire at the CMR Building), 1,500 millirem for RAD-12 (plutonium release from Dual Axis Radiographic Hydrodynamic Test [DARHT] Facility during an earthquake), and 1,200 millirem for RAD-09B (puncture, at

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Area G, of the highest-content drum of TRU waste).

Subsequent to disposition, one possible land use is limited commercial development, with the majority of the tract set aside for cultural preservation. Under this scenario, there would be slight increases in collective tract dose and excess LCF (versus zero dose in the No Action Alternative). For example, the LANL SWEIS estimated a collective population dose of 120,000 person-rem for all people living within a 50-mile (80-kilometer) radius of LANL, resulting in an estimated 57 excess LCFs for hypothetical accident RAD-02. This would increase by 38 person-rem and one LCF if the White Rock Tract was set aside for cultural preservation with limited commercial development. Table 14.3.12.3-1 compares the estimated additional consequences of all hypothetical radiological.

Another contemplated land use for the White Rock Tract is a combination commercial and residential development. If this development were to occur, public exposures would be substantially greater than in the No Action Alternative. For example, there would be an estimated 2,500 person-rem incremental collective dose for accident RAD-02, versus 120,000 person-rem estimated in the LANL SWEIS. Table 14.3.12.3-1 compares the estimated additional consequences of all hypothetical radiological accidents for the two land use scenarios.

14.3.12.4 Natural Event Accidents

Natural event accidents would have no estimated chemical consequences at the White Rock Tract. For the postulated accidents (wildfire and four earthquake scenarios), chemical concentrations in any air plumes released by potential chemical

accidents would be below both ERPG-3 (life-threatening) and ERPG-2 (serious health effects) by the time the air plumes reached the tract, even under adverse weather dispersion conditions.

MEI doses would be the same as in the No Action Alternative, regardless of land use subsequent to transfer of ownership. The MEI dose resulting from the postulated wildfire would be about 1 rem due to releases from TRU waste storage domes at Area G; the maximum dose from the most severe earthquake would be approximately 6 rem.

If the tract were used for limited commercial development subsequent to disposition, exposures would increase from the No Action Alternative (both zero). The estimated tract collective doses would approach 100 person-rem for the wildfire accident and 500 person-rem for the most severe earthquake. Associated cancer fatalities would be less than one for either accident.

Another possible land use for the White Rock Tract is a combination residential development (approximately 40 acres [16 hectares], 760 dwelling units) and commercial development (a 20-acre [8-hectare] recreational vehicle park). If this development were to occur, public exposures would be significantly greater than in the No Action Alternative. The estimated tract collective doses would approach 1,000 person-rem for the wildfire accident and 7,500 person-rem for the most severe earthquake. Associated cancer fatalities would be less than one for the wildfire and approximately four for the most severe earthquake. These exposures would be in addition to those estimated in the LANL SWEIS (340,000 person-rem and 230 excess LCFs for RAD-03B).

Table 14.3.12.3-1. Additional Accident Consequences Associated with the Contemplated Land Uses on the White Rock Tract

				CULTURAL PRESERVATION AND COMMERCIAL SCENARIO ^a		COMMERCIAL AND RESIDENTIAL SCENARIO ^a		SWEIS ESTIMATES ^b	
Accident Scenario	Accident Location	Facility	Frequency per Year	Collective Dose ^c	Excess LCF	Collective Dose ^c	Excess LCF	Collective Dose ^c	Excess LCF
RAD-01	54-38	RANT	1.6×10^{-3}	4	0.002	58	0.029	72	0.04
RAD-02	03-29	CMR	1.5×10^{-6}	170	0.083	2,500	1.250	120,000	57
RAD-03	18-116	Kiva #3	4.3×10^{-6}	5	0.002	68	0.034	100	0.06
RAD-05	21-209	TSTA	9.1×10^{-6}	0	0	0	0	24	0.01
RAD-07	50-69	WCRR	3.0×10^{-4}	3	0.001	41	0.021	1,300	0.69
RAD-08	54-230	TWISP	4.3×10^{-6}	73	0.037	1,100	0.55	400	0.2
RAD-09A	54-226	TWISP	4.9×10^{-1}	1	0.001	16	0.008	4	0
RAD-09B	54-226	TWISP	4.9×10^{-3}	56	0.028	840	0.420	230	0.12
RAD-12	16-411	--	1.5×10^{-6}	87	0.043	1,300	0.650	35,800	18
RAD-13	18-116	Kiva #3	1.6×10^{-5}	7	0.003	99	0.050	160	0.08
RAD-15A	03-29	CMR	3.6×10^{-5}	1	0	11	0.006	175	0.09
RAD-15B	03-29	CMR	3.2×10^{-5}	14	0.007	210	0.105	3,400	1.7
RAD-16	03-29	CMR	3.5×10^{-6}	0	0	2	0.001	56	0.03

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Notes: RANT = Radioactive Assay and Nondestructive Test; TSTA = Tritium Systems Test Assembly; WCRR = Waste Characterization, Reduction, and Repackaging; TWISP = Transuranic Waste Inspectable Storage Project

^a In addition to doses estimated in the LANL SWEIS.

^b For the entire population within a 50-mile (80-kilometer) radius of LANL.

^c Person-rem

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14.3.13 *Environmental Justice*

For environmental justice impacts to occur, there must be high and adverse human health or environmental impacts that disproportionately affect minority or low-income populations. The human health analyses for the contemplated land uses estimate that air emissions and hazardous chemical and radiological releases from LANL operations would be expected to be within regulatory limits and that no excess LCFs would likely result. The human health analyses also indicate that radiological releases from accidents would not result in disproportionate adverse human health or environmental impacts. Therefore, such accidents would not have disproportionately high and adverse impacts on minority or low-income populations with regard to implementing the contemplated land uses on this tract.

The analyses also indicate that socioeconomic changes resulting from implementing any of the proposed alternatives would not lead to environmental justice impacts. Modest economic benefits would arise from the additional jobs created during construction and operation of the new facility. Secondary effects would include small increases in business activity and would likely increase revenues to local governments. Each of these impacts would be positive and would not disproportionately affect low-income or minority populations.

The analysis of impacts to cultural resources indicates that TCPs could be present on the tract or in adjacent areas. If present, TCPs could be impacted by the conveyance or transfer or by subsequent land uses. Consultations to determine the presence of these resources have not been completed, and the degree to which these resources may be impacted has not been ascertained. Impacts to TCPs potentially may cause disproportionately high or adverse effects on minority or low-income communities, but

these effects cannot be determined at this point in the consultation process. Legal counsel for the Pueblo of San Ildefonso has expressed the opinion that conveyance and use of this tract would result in an environmental justice impact for the Pueblo's population.

14.3.14 *Irreversible and Irretrievable Commitment of Resources*

This section describes the major irreversible and irretrievable commitments of resources that can be identified at the level of analysis conducted for this CT EIS. A commitment of resources is irreversible when its primary or secondary impacts limit the future options for a resource. An irretrievable commitment refers to the use or consumption of a resource that is neither renewable nor recoverable for use by future generations.

The actual conveyance or transfer of the White Rock Tract would not immediately cause any irreversible or irretrievable commitments of resources. Nor would cultural preservation with limited commercial development along State Road 4, one of the two contemplated land uses subsequent to transfer of ownership. Commercial and residential development would, however, cause irreversible commitments of ecological habitat and cultural resources within the tract and in adjacent areas (where human activity levels would increase due to the presence of about 2,200 new residents and lodgers).

New development also would cause the irretrievable commitment of resources during construction and subsequent use of 760 new dwelling units. Energy would be expended in the form of natural gas and electricity. Additional water would be consumed also. Construction of these buildings would require the irretrievable commitment of standard building materials such as lumber and roofing materials.

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14.3.15 Unavoidable Adverse Environmental Impacts

The actual conveyance or transfer of the White Rock Tract could result in the loss of certain Federal protections for cultural resources on the tract. Loss of these protections could be considered an unavoidable adverse impact to these resources because development of previously undisturbed areas could result in physical destruction, damage, or alteration of cultural resources on the subject land tract and in adjacent areas. The conveyance or transfer of the tract also could result in the loss of certain Federal protections for ecological resources and consideration of these resources in planning future activities on the tract.

Subsequent use of the tract for cultural preservation with limited commercial development along State Road 4 would have few adverse environmental impacts. Subsequent commercial and residential development, however, would cause unavoidable adverse impacts in several resource areas.

One such impact would be substantial loss of ecological habitat within the tract itself. There also could be more frequent human intrusion into adjacent habitat areas of San Ildefonso Pueblo. There also is potential for adverse impacts caused by introduction of land uses that are incompatible with adjacent resource protection efforts.

Commercial and residential development also would result in increased demands for utilities (electricity, natural gas, water, solid waste, and sewage services). Increased demand for three of these services (water, solid waste, and sewage), would have adverse effects in the immediate Los Alamos region by lowering the aquifer level more quickly, shortening the remaining lifetime of the County landfill, and increasing both the quantities of sewage that require treatment and the quantities of treated sewage discharged to the environment. The

environmental effects of increased demand for electricity and natural gas would be felt elsewhere (in the Four Corners region, for example), in the form of increased emissions of air pollutants in order to generate electricity. Increased consumption of natural gas adds to global climate change through increased emissions of carbon dioxide.

Development also would lead to an estimated 10 percent increase in personal vehicles in Los Alamos County and a one-third increase in the White Rock townsite, with attendant increases in congestion, road deterioration, and traffic noises. Noise levels would especially be impacted within and immediately adjacent to the tract itself, with noises increasing in magnitude, frequency of occurrence, and duration (into the night). The visual environment would deteriorate, both within the tract and from adjacent areas of the townsite.

Finally, residential development would increase the potential for degradation of surface water quality. Standard mitigation measures, however, can limit both short- and long-term impacts to surface water and groundwater quality.

14.3.16 Relationship Between Local Short-Term Use of the Environment and the Maintenance of Long-Term Productivity

The actual conveyance or transfer of the White Rock Tract would not immediately cause any specific impacts on short-term uses of the environment. Subsequent use of the tract for cultural preservation with limited commercial development along State Road 4 would be compatible with the long-term land uses of both cultural preservation on adjacent San Ildefonso lands and with commercial uses of the business district of the White Rock Tract.

Subsequent commercial and residential development of the tract, however, may be

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incompatible with the long-term land uses of adjacent San Ildefonso lands and with nearby Bandelier National Monument (Tsankawi ruins). Development would also lead to disruption and loss of ecological habitat and cultural resources in this largely undisturbed

tract of land. The development would reduce the ecological productivity of the tract and would preclude future use of the land for ecological habitat or for cultural resource protection.